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ABSTRACT

This paper presents the results of a study conducted as a follow-up to a joint project between the Flint Community Schools and the Educational Testing Service. In the project, a model for the identification and selection of gifted children was developed. The model sought to minimize the biases operating in more traditional identification procedures which result in an under-representation of children from less-advantaged environments. Statistical tests were conducted to test for differences between groups of children selected by the old process and by the new process. Additionally, differences were sought between students selected as eligible for the gifted program and students who were identified as potentially gifted, but who did not pass through the final selection stage. Chi-sqare analyses indicated that the new process resulted in a pool of gifted children which was more representative of the total school population than was achieved by the old process. (Author/RLV)

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THE DEVELOPMENT OF A CULTURALLY FAIR MODEL FOR THE EARLY IDENTIFICATION AND SELECTION OF GIFTED CHILDREN: A FOLLOW UP STUDY

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ABSTRACT

This paper presents the results of a study conducted as a follow-up to a joint project between the Flint Community Schools and Educational Testing Service. The project involved the development of a culturally fair model for the identification and selection of gifted children. The model, by involving community participants in the selection of criteria, as well as in all decision making, sought to minimize the biases operating in more traditional identification procedures which result in the under-representation of children from less advantaged environments. MANOVAS were conducted to test for differences between groups of students selected by the new process and students selected by the old process. Additionally, a MANOVA was conducted to test for differences between students selected as eligible for the gifted program and students who were identified as potentially gifted, but who did not pass through the final selection stage. Chi-square analyses indicated that the new process resulted in a pool of gifted children which was more representative of the total school population than was achieved by the old process.

THE DEVELOPMENT OF A CULTURALLY FAIR MODEL FOR THE EARLY IDENTIFICATION AND SELECTION OF GIFTED CHILDREN: A FOLLOW UP STUDY

Introduction

During the first part of the 1978-79 school year, the Flint Community Schools of Flint, Michigan implemented a newly developed process for the identification and selection of gifted children. The process followed an identification and selection model developed by Educational Testing Service and implemented by the Flint Community Schools. (A complete report of this joint project has been prepared earlier and is available from ERIC[1]. The reader is directed to Appendix A for a summary of this report.) The model, which was developed with ongoing community participation, was designed to increase the pool of eligible children and to minimize the impact of biases of opportunity, language, and cultural saturation which mitigate against the identification and selection of gifted children from less advantaged environments.

Because the identification and selection process involved multiple indicators of giftedness as supplied by teacher nominations, parent nominations, as well as indicators of superior academic achievement, a considerable amount of data became available for analysis. An ex post facto study was conducted to analyze the available data; it is the purpose of this paper to report the results of this study.

Sample

Data for three distinct groups of students were available for analysis. Data were available for: 1) students who were selected for participation in the gifted program by means of the new process (N=158), 2) students who were identified as potentially gifted, but who were not selected for participation in the program during the second stage of the new process (N=314), and 3) students who had been selected for the gifted program by means of the old process (N=100). Due to many instances of missing data, the various analyses conducted involved much smaller sample sizes.

Source of data

Comparisons among the groups were made on the basis of seven indicators of giftedness. These were:

1. Parent Questionnaire (PQ) scores. As part of the new process, which sought parents' opinions concerning their child, parents of all elementary school students were mailed an 11 item multiple choice questionnaire. Based on a sample of 509 subjects, the Alpha reliability coefficient for the PQ was .63.

1. The Development of a Culturally Fair Model for the Early Identification and Selection of Gifted Children. T. Storlie et al. ED #159 229

2-5. Characteristics of Able Pupils (CAP) The CAP is a teacher checklist which yields scores on 4 scales. Each scale contains a list of behavioral indicators of giftedness which the teacher either checks, if that indicator applies to the students, or leaves blank if it does not apply. Based on a sample of 442 students, the Alpha reliability coefficient for the Creativity Scale was .87. The Alpha reliability coefficients for the Learning, Motivation, and Leadership/Social Awareness Scales were, respectively .86, .83, and .86. The Alpha reliability for all four scales combined was .95.

6. Years above grade level in Math. This was derived by calculating the difference between a student's grade level at the time of testing and the student's grade equivalent score on the SRA Achievement Series, Math Subtest.

7. Years above grade level in Reading. The reading score was derived in the same manner as was the Math score.

Analyses

Chi-square analyses were conducted to compare the number of white students and non-white students identified and selected to the numbers expected on the basis of the actual population distribution. This was done to determine whether the new identification and selection process indeed resulted in a pool of gifted children more representative of the Flint community. A similar analysis was conducted with the children selected by the old process.

A MANOVA was conducted between the group of students selected for the gifted program by means of the new process and the group of students identified as potentially gifted but not selected during the final selection stage. The dependent variable set consisted of the selection criteria, i.e. the seven scores listed above. Only students for whom all these scores were available were included in this analysis.

Finally, three separate MANOVAS were conducted comparing the group of students selected for the gifted program by the new process with the group of students selected as gifted by means of the old process. One MANOVA was conducted with only the Math and Reading scores as the dependent variable set, one MANOVA was conducted with only the CAP scores as the dependent variable set, and finally, a third MANOVA was conducted with both the CAP scores and the Math and Reading scores as the dependent variable set. Since the old process did not involve Parent Questionnaires, this variable was not included in these comparisons. Moreover, new CAP scores were obtained for a sample of students selected by the new process and a sample selected by the old process, - both samples currently enrolled in the gifted program. It was on these two groups that these three MANOVAS were conducted.

Results

Chi-square tables comparing the number of white students and non-white students identified and selected, to the numbers expected based on the population distribution are presented on Table 1. It may be seen that stage 1 of the identification and selection process, the identification stage, resulted in a pool of potentially gifted children which was representative of the total Flint Community School population at the elementary level. It may also be seen that, although a great improvement over results attained by means of the old process, a somewhat disproportionate number of white students were selected as eligible for participation in the gifted program.

As originally specified, the model for the identification and selection of gifted children involved a two-stage process. Stage 1 aimed for the identification of a large pool of potentially gifted children. Stage 2 involved a special selection committee which considered each candidate's qualifications, summarized in a manner as to guarantee each candidate's anonymity. On the basis of this information, the committee made a holistic decision concerning the candidate's eligibility for the gifted program. The committee also had the option to postpone the decision pending more testing. If this were a valid process, one would expect that those students selected for the gifted program by means of stage 2 would show higher scores on the criterion variables than those students who made it through stage 1 only. The MANOVA conducted between these two groups substantiates this expectation. Table 2 presents the means and standard deviations for the 2 groups involved in this analysis. Table 3 summarizes the MANOVA where it may be seen that taking all of the dependent variables into account, the two groups differ at a statistically significant level. Examination of Table 2 indicates that the difference favors the selected group. Furthermore, it may be seen, by comparing the standardized discriminant function coefficients, that the Reading, Learning Ability, and Parent Questionnaire scores, in that order, contributed most to the difference between these groups.

Tables 4 - 9 present summary statistics and MANOVA tables for the three MANOVAS conducted between the group of students selected by the new process and the group of students selected by the old process. It may be seen (Table 4) that although there are differences between the two groups on each of the variables, these were not found to be statistically significant taken either as a set or compared by means of individual ANOVAS (Table 5). Since this MANOVA involved very small sample sizes, it was felt that MANOVAS conducted using smaller dependent variable sets, which would involve larger samples, might be informative. However, neither the MANOVA conducted with only the CAP scores (Table 7) nor the MANOVA conducted with only the Math and Reading scores (Table 9) showed any significant difference between these two groups. It may be seen, however, that considering only the Reading scores, the 2 groups did differ at a statistically significant level (Table 9) favoring the group selected by means of the old process (Table 8).

Discussion

A basic assumption underlying the development of our model for the identification and selection of gifted children was that with community participation in the selection of criteria, which included such variables as

creativity, motivation, leadership, etc., a pool of gifted children could be identified which would be more representative of the total school population. Sometimes, giftedness has been taken to be synonymous with high IQ, a factor which often mitigated against the identification of gifted children from less advantaged environments, due to the cultural biases inherent in many IQ tests. For the most part, our assumption proved to be correct. Our analysis has shown that the proportion of white to non-white students selected as gifted by the new process much more closely resembles the actual population proportions than that achieved by the old selection procedures. Those skeptical of such an approach to selection of gifted children express the concern that gifted children identified and selected on the basis of multiple and varied indicators of giftedness will be handicapped by lower academic skills at the start of their participation in a gifted program, when compared to their classmates who may have been selected by more traditional means. Results of our study, although ex post facto, and based in some cases on very small sample sizes seem to indicate that this is not so. MANOVAS conducted between students selected by the new process and students selected by the old process did not show significant difference between these groups on either the academic or non-academic variables.

Also encouraging were the results of the MANOVA conducted between groups of students identified but not selected and students who were selected. Significant differences between the two groups on all variables considered together, favoring the selected students, indicate that the selection committee was quite successful in discriminating between these groups solely on the basis of summary information.

Table 1

CHI-SQUARE TABLES COMPARING THE NUMBER OF WHITE AND NON-WHITE STUDENTS IDENTIFIED AND SELECTED TO THE NUMBERS EXPECTED ON THE BASIS OF THE ACTUAL POPULATION DISTRIBUTION.

	Identified White Students		Identified Non-White Students	
	N	%	N	%
E*	201	43	270	57
O*	193	41	278	59

$x^2 = .335$ (NS)

	Selected White Students		Selected Non-White Students	
	N	%	N	%
E	68	43	90	57
O	86	54	72	46

$x^2 = 8.36$
$p < .01$

	Selected White Students		Selected Non-White Students	
	N	%	N	%
Old Process E	59		37	
Old Process O	71	74	25	26
New Process E	98		60	
New Process O	86	54	72	46

$x^2 = 10.20$
$p < .01$

	White Students		Non-white Students	
	N	%	N	%
Population Distribution	8,398	43	11,915	57

* E = Expected, O = Observed

Table 2

MEANS AND STANDARD DEVIATIONS FOR THE "SELECTED" AND "IDENTIFIED ONLY" GROUPS FOR THE SELECTION CRITERIA

		Students Selected for the Gifted Program N = 59	Students Identified only but not Selected N = 79
Parent Questionnaire	$\bar{X}$	34.627	31.848
	SD	3.366	4.521
Creativity	$\bar{X}$	52.169	40.633
	SD	21.629	25.587
Learning Ability	$\bar{X}$	62.881	42.076
	SD	24.583	26.637
Motivation	$\bar{X}$	58.102	43.443
	SD	22.353	26.803
Leadership/ Social Awareness	$\bar{X}$	63.814	53.785
	SD	22.865	29.269
Math	$\bar{X}$	2.459	2.035
	SD	.850	.904
Reading	$\bar{X}$	3.056	1.929
	SD	1.208	.992

Note: The maximum score for the Parent Questionnaire is 44. The maximum score for the Creativity, Learning Ability, Motivation, and Leadership/Social Awareness scales is 100. The Math and Reading scores represent years above grade level in that subject.

Table 3

MULTIVARIATE AND UNIVARIATE ANALYSIS OF VARIANCE FOR "SELECTED" AND "IDENTIFIED ONLY" GROUPS WITH THE SELECTION CRITERIA AS THE DEPENDENT VARIABLE SET

Source of Variation	Multivariate[1] $F_{7,130}$	Dependent Variable	MS (Between Groups)	MS (Within Groups)	Univariate $F_{1,136}$	SDFC[2]
Selection Status: Selected vs. Identified only	8.607**	Parent Questionnaire	260.845	16.544	15.767**	-.429
		Creativity	4495.254	574.990	7.818**	.182
		Learning Ability	14620.170	664.660	21.996**	-.486
		Motivation	7257.522	625.095	11.610**	-.198
		Leadership/ Social Awar.	3396.984	714.282	4.756*	.084
		Math	6.069	.777	7.809**	-.036
		Reading	42.885	1.187	36.130**	-.644

*p < .05
**p < .01

[1] Using Wilks' Lambda criterion

[2] SDFC: Standardized Discriminant Function Coefficient

Table 4

MEANS AND STANDARD DEVIATIONS FOR THE "NEW PROCESS" AND "OLD PROCESS" GROUPS FOR THE AVAILABLE DEPENDENT VARIABLES

		Students Selected by the New Process N = 16	Students Selected by the Old Process N = 13
Creativity	$\bar{X}$	48.438	59.308
	SD	24.427	24.178
Learning Ability	$\bar{X}$	43.562	53.462
	SD	22.730	37.856
Motivation	$\bar{X}$	56.375	57.385
	SD	26.683	33.910
Leadership/ Social Awareness	$\bar{X}$	58.938	65.308
	SD	25.746	28.561
Math	$\bar{X}$	2.956	2.723
	SD	.697	1.099
Reading	$\bar{X}$	3.350	4.077
	SD	1.324	1.449

Note: Maximum score for the Creativity, Learning Ability, Motivation, and Leadership/Social Awareness scales is 100. The Math and Reading scores shown represent years above grade level in each of those subject areas.

Table 5

MULTIVARIATE AND UNIVARIATE ANALYSIS OF VARIANCE FOR "NEW PROCESS" AND "OLD PROCESS" GROUPS WITH THE AVAILABLE SELECTION CRITERIA AS THE DEPENDENT VARIABLE SET

Source of Variation	Multivariate[1] $F_{6,22}$	Dependent Variable	MS (Between Groups)	MS (Within Groups)	Univariate $F_{1,24}$
Selection Status:	.709	Creativity	847.500	591.285	1.433
Students selected by the new process vs. students selected by the old process.		Learning Ability	702.832	923.969	.761
		Motivation	7.311	906.623	.008
		Leadership/ Social Awar.	291.052	730.804	.398
		Math	.390	.806	.484
		Reading	3.790	1.906	1.988

[1]Using Wilks' Lambda criterion

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Table 6

MEANS AND STANDARD DEVIATIONS FOR THE "NEW PROCESS" AND "OLD PROCESS" GROUPS FOR THE NON-ACADEMIC DEPENDENT VARIABLES

		Students Selected by the New Process N = 19	Students Selected by the Old Process N = 29
Creativity	$\bar{X}$	47.526	56.966
	SD	25.116	25.400
Learning Ability	$\bar{X}$	41.474	53.483
	SD	21.554	31.200
Motivation	$\bar{X}$	50.105	60.069
	SD	28.682	29.171
Leadership/ Social Awareness	$\bar{X}$	59.632	62.379
	SD	23.773	25.607

Note: The maximum score for the Creativity, Learning Ability, Motivation, and Leadership/Social Awareness scales is 100.

Table 7

MULTIVARIATE AND UNIVARIATE ANALYSIS OF VARIANCE FOR "NEW PROCESS" AND "OLD PROCESS" GROUPS WITH THE AVAILABLE NON-ACADEMIC SCORES AS THE DEPENDENT VARIABLE SET

Source of Variation	Multivariate[1] $F_{4,43}$	Dependent Variable	MS (Between Groups)	MS (Within Groups)	Univariate $F_{1.46}$
Selection Status:	.752	Creativity	1022.777	639.559	1.599
Students selected by the new process vs. students selected by the old process.		Learning Ability	1655.501	774.347	2.138
		Motivation	1139.598	839.862	1.357
		Leadership/ Social Awar.	86.668	620.288	.140

[1]Using Wilks' Lambda criterion

Table 8

MEANS AND STANDARD DEVIATIONS FOR THE "NEW PROCESS" AND "OLD PROCESS" GROUPS FOR THE MATH AND READING SCORES

		Students Selected by the New Process N = 112	Students Selected by the Old Process N = 44
Math	$\bar{X}$	2.523	2.777
	SD	.938	1.213
Reading	$\bar{X}$	3.109	3.673
	SD	1.230	1.571

Note: The Math and Reading scores shown above represent years above grade level.

Table 9

MULTIVARIATE AND UNIVARIATE ANALYSIS OF VARIANCE FOR "NEW PROCESS" AND "OLD PROCESS" GROUPS WITH MATH AND READING SCORES AS THE DEPENDENT VARIABLE SET

Source of Variation:	Multivariate[1] $F_{2,153}$	Dependent Variable	MS (Between Groups)	MS (Within Groups)	Univariate $F_{1,154}$
Selection Status:	2.904	Math	2.039	1.045	1.951
Students selected by the new process vs. students selected by the old process.		Reading	10.041	1.780	5.640*

*$p < .05$

[1]Using Wilks' Lambda criterion

APPENDIX A

EXECUTIVE SUMMARY

FROM

THE DEVELOPMENT OF A CULTURALLY FAIR MODEL FOR THE EARLY IDENTIFICATION AND SELECTION OF GIFTED CHILDREN*

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*The complete ETS report on the Flint Gifted Project may be obtained from:

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EXECUTIVE SUMMARY

As a joint venture, the Flint Community Schools and Educational Testing Service explored and developed a two-stage model for early identification and selection of gifted children in kindergarten through grade 3, for the Walker Full-time Gifted Program. The model provides a systematic process for identifying gifted children from all geographic areas, socioeconomic levels, and racial groups. The project evolved out of an increasing concern that traditional methods of identifying gifted children, which rely heavily on the use of individual IQ tests, result in under-representation of children from disadvantaged backgrounds.

The problem was addressed by use of the Nominative Group Process, an interactive decision-making process, which involved Flint school administrators, school psychologists, teachers, parents, and other community members. Where differences of opinion may occur regarding a specifically stated problem, this process provides equal participation by all group members in generating ideas, discussion, information sharing, and problem resolution by use of a ranking procedure. Project activities also included the presentation of a series of seminars on topics such as creativity, early childhood, instrumentation, language arts, and mathematics. The purpose of the seminars was to provide project participants with a sound basis for decision-making.

By use of the Nominative Group Process, project participants formulated a ranked list of six criteria for judging giftedness. These were, in order of importance: creativity, intellectual potential, learning ability, motivation, leadership and social/self awareness, and academic achievement. These criteria formed the basis for implementing Stage 1 of the model: the identification of potentially gifted children. Three identification procedures were established: 1) parent nominations by means of an eleven-item questionnaire, 2) school faculty nominations based on a list of behavioral indicators of each criterion, and 3) achievement data. Children were to be placed in the identification pool if nominated by any one or any combination of these three procedures. To provide an additional source of information, teachers of nominated children were to complete a "teacher checklist" for each nominated pupil.

Stage 2 of the model, selection of pupils for participation in the gifted program, was to be implemented by a selection committee comprised of community representatives, balanced by sex and race. On the basis of individual pupil information, derived from the identification process, the committee was to generate a ranked list of eligible candidates for the gifted program. The children's cultural background, sex, or social class were not factors in the committee's

decisions inasmuch as such information was deleted from pupil information provided to the committee. Given the ranked list of eligible candidates prepared by the committee, Flint Community Schools' administrators were to make final admission decisions, giving consideration to those variables (social class, ethnic origin, race, or sex) which would best further the goals and philosophy of the Walker Full-time Gifted Program.

The Flint Community Schools selected five schools to participate in a pilot implementation study of the identification and selection model. The basis for selecting the schools was: past history of non-participation of gifted children, high percentage of minority enrollment, and geographic location. With few exceptions, the model was implemented as specified. Results of the pilot study were encouraging. Of 316 children identified as potentially eligible for the gifted program, 56 were selected by the committee as eligible for the gifted program. This represented a major accomplishment for schools that in the past had not succeeded in identifying any pupils as even potentially eligible.

Also, results of the pilot study supported the utility of parent nominations in identification of gifted children. Of the 56 children selected, 12 had been nominated by their parents, and of these three had not been nominated by any other procedure. Although this did not represent a large proportion of the children selected, these children would have been neglected had parent nominations not been a part of the identification procedures. Also, it appears reasonable to anticipate that this proportion would increase with greater emphasis placed on follow-up procedures for non-respondents to the parent questionnaire mailing.

Several major accomplishments characterize this project:

1. A two-stage identification and selection model was developed which successfully addressed the problem of underrepresentation of disadvantaged children due to traditional identification procedures.

2. The newly developed model demonstrated the importance and utility of parent involvement in the identification of gifted children.

3. The importance and desirability of multiple assessment procedures as part of the identification process was recognized.

4. A workable, locally derived definition of giftedness was formulated. Behavioral indicators were linked to this definition, greatly facilitating the identification process.

5. An interactive group process of decision making was successfully implemented and will continue as an integral component of the program.

However, in view of the exploratory nature of the project, the need for follow-up activities relative to the newly developed identification and selection model was recognized and ETS made the following recommendations.

1. Determine the reliability and validity of the instruments used to implement the model.

2. Form a standing curriculum subcommittee at the Walker school to monitor the progress of newly selected gifted students relative to the existing curriculum and to monitor the congruence between selection criteria and program components.

3. Design inservice activities to assist teachers in developing instructional techniques applicable to children they will be teaching within the context of the gifted program.

4. Implement the identification and selection model on a district-wide basis, striving for a 100 percent return in response to the parent questionnaire mailing.

5. Make provision for continual parent involvement in the gifted program.

6. Reexamine the Selection Committee's role in implementing the identification and selection model.

At a time when selection and admissions policies are being subjected to increasing public scrutiny, particularly since the Supreme Court's recent Bakke decision, the Flint model offers a unique and innovative approach to the identification process which assures fair representation of disadvantaged children in the identification pool and a selection process in which the Selection Committee is unaware of the demographics of eligible candidates. Also, in the final admission decisions, the model allows for consideration of those variables, be they ethnic origin, sex, or social class, which are deemed important or desirable for the Walker gifted program.

This approach closely approximates a two-stage model for admissions proposed by W. H. Manning, in a recent report of the Carnegie Council on Policy Studies in Higher Education, wherein a distinction is maintained between the selection and admission procedures.[1] This

[1]Winton H. Manning, "The Pursuit of Fairness in Admissions." In Selective Admissions in Higher Education, a Report of the Carnegie Council on Policy Studies in Higher Education. San Franisco: Jossey-Bass, 1977.

distinction allows the decision-maker to consider during the admissions process that subgroup of selected candidates which will best advance the goals or philosophy of the institution. In this case, the Flint model allows this kind of process in the Walker Full-time Gifted Program.

It was recommended previously that a well planned district-wide pilot study be conducted in order to adequately assess the effectiveness of the early identification and selection model. The need for much follow-up work was also emphasized. However, it is evident that this project represents a significant step toward improving the process by which children are identified and selected for gifted or special programs. The future holds great promise for further improving this work.